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PATENT

SPECIFICATION



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Complete Accepted, Dec. 18, 1919.

COMPLETE SPECIFICATION.

Combined Stocking and Pad for Amputated Legs.

I, EMMETT BLEVENS, of 306, Walker Building, Louisville, County of Jefferson, State of Kentucky, United States of America, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to bearings for the stumps of amputated legs, and it relates more particularly to a combined stocking and pad for use in fitting the stump in the socket of an artificial leg.

One of the objects of this invention is to minimize as far as practicable any pressure upon the portion of the stump of the leg adjacent to its end, and thus avoid discomfort and danger of swelling, such as frequently results when such pressure is permitted.

Another object is to provide a pad which is gradually thickened from its bottom portion upward, in order to compensate for the shrinkage of the leg stump and thus increase the comfort of the wearer.

Reference is had to the accompanying drawings in which like parts are indicated by similar reference symbols throughout the several views.

Figure 1 is a side elevation of a leg stump having the inner sock of my improved bearing thereon, the outer sock being shown as collapsed about the lower portion of the leg stump, the elastic pad being omitted, and parts being broken away.

Figure 2 is a view somewhat similar to Figure 1, with the elastic pad in place, parts being shown as broken away, and the lower part of the stump-socks being shown in vertical section.

Figure 3 is a sectional view corresponding to Figures 1 and 2, but shows all the parts in proper relation, an artificial foot and leg being indicated in dotted lines.

Figure 4 shows a transverse section of the device along the line 4—4 of Figure 3.

Figure 5 is a view somewhat similar to Figure 4, illustrating the relation of the same elements fitting upon a leg-stump of somewhat smaller circumference.

Figure 6 is a side elevation of the elastic pad extended.

Figure 7 is a sectional view along the line 7—7 of Figure 6.

Figure 8 shows a section along the line 8—8 of Figure 6; and

Figure 9 is a fragmental view, partly in vertical section, of a somewhat modified form of the invention, showing an increased number of thicknesses in the leg of the sock.

[Price 6d.]

The inner stump-socket 10 is in the form of a tapering bag closed at the small end 13 and open at the upper end; the outer stump-sock 11 being secured to or made integral with the inner stump-sock at 12. Preferably, the junction 12 is formed by interweaving or inter-knitting the lower end of the outer sock to a portion of the inner sock at a slight distance above the lower closed end 13 of the latter. The distance from the junction 12 to the lower end may be from one to several inches; but the distance should not exceed that which is necessary to allow perfect freedom of the end of the stump; that is, the comparatively tender and sensitive portion of the stump should not be touched by any part of the bearing except the single thickness of woven or knitted fabric which constitutes the lower end portion 13 of the inner sock.

The outer sock and the major portion of the inner sock combine to form a pad which is thicker than the portion 13, and this tends to provide a space between said portion 13 and the inner wall of the artificial leg. However, the space or pressure relief thus provided is usually inadequate; and moreover, the bearing thus provided by the inner and outer socks has not sufficient rigidity or solidity to obtain the best results when the usual fastening strap or clamp is secured thereon for attaching the artificial leg to the bearing. Therefore, the pad 14 is provided.

The pad is shown in detail as detached in Figures 6, 7 and 8, and is shown applied in Figures 2, 3, 4 and 5. It is preferably constructed of a sheet of sponge-rubber having its edges formed with a wide bevel. When the pad is applied to the stump, two of these bevel edges may meet or approximately meet as illustrated in Figure 4, or they may be lapped upon one another as illustrated in Figure 5, so that this pad forms an elastic bearing interposed between the sock legs.

The inner and outer socks, being of elastic material such as woven or knitted fabric, will readily conform to leg-stumps of different sizes, and the elastic pads 14 may be made of different sizes, so that the proper size may be selected for fitting any particular size or shape of leg. When the proper size has been selected and placed around the inner sock, and the stump enclosed therein, as shown in Figure 2, the outer sock 11 is drawn up over or around the elastic pad 14, and thus holds the elastic pad in its position around the stump.

When the artificial leg is placed over the leg-stump, as shown in Figure 1, its upper portion embraces the pad or bearing which is formed by the several thicknesses of material of the inner and outer socks and the intermediate pad, so that the lower end of the stump is disposed concentric with the shell or socket of the artificial leg; or, in other words, there is an air space surrounding the lower portion of the inner stump-sock.

The pad 14 is preferably formed with beveled edges 15 and 16 which wholly or partly overlap one another, with the lower edge 17, the upper edge 18 substantially parallel to the lower, and oblique edges 19 and 20.

The upper edge 18 preferably extends to the knee-cap, which prevents the pad from working upward, while the oblique edges 19 and 20 preferably diverge upwardly to allow freedom of action of the leg muscles back of the knee. Although sponge-rubber with smooth faces is the preferable material for forming the pads 14, the invention is not restricted to the use of sponge rubber, as other suitable elastic material may be used as desired.

It often occurs that the leg-stump shrinks to a size considerably less than the original size, and in order that it may be artificially restored to approximately its former size, and at the same time provide an extra thick padding to compensate for the absence of flesh upon the bones and sinews of the stump, one or more additional stump-sock legs may be provided, as illustrated at 10' and 11, in Figure 9, but with a single covering only over the end of the stump. In such case the elastic pad 14 may either be dispensed with, or placed between the inner sock and one of the intermediate socks, or between

two intermediate socks, or between one of the intermediate socks and the outer sock.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that

5 what I claim is:—

1. A stump-leg-bearing comprising an inner stump-sock having a closed lower end, an outer stump-sock having an open lower end, the inner and outer stump-socks being joined together at the extreme lower end of the latter, the junction of said inner and outer socks being at a slight distance above the 10 ~~closed~~ lower end of the inner sock, and a sheet of elastic material removably mounted between the legs of said outer and inner socks.
2. A stump-leg-bearing substantially as in Claim 1, further characterized in that the sheet of elastic material comprises a sheet of sponge rubber having smooth faces and beveled edges.
- 15 3. A surgical appliance adapted for use in a bearing for supporting amputated leg stumps in artificial legs, comprising an inner sock in the form of a tapering bag of elastic fabric closed at its small end and open at its upper end, the small end being adapted to fit over the end of the stump, and the large end to be drawn over the knee of the wearer, and one or more sock legs open 20 at the top and secured at the bottom to said inner sock above the closed end thereof, whereby a single thickness is provided to go over the sensitive portion of the stump of the wearer and a padding effect is secured at the bearing portion of the appliance.
4. A surgical appliance adapted for use in a bearing for supporting 25 amputated leg stumps in artificial legs, comprising an oblong sheet of sponge rubber having smooth inner and outer faces, and beveled edges, the upper and lower edges being substantially parallel, and the end beveled edges being adapted to overlap to form a smooth continuous band around the stump of the wearer, and the upper edges being cut away at the corners to leave clearance for the 30 muscles behind the knee of the wearer, with means for holding said pad in place on the stump of the wearer.
5. A surgical appliance substantially as herein described and shown.
6. A sock for use in a surgical appliance of the character described, substantially as herein described and shown.
- 35 7. A sponge rubber pad for use in a surgical appliance of the character described, substantially as herein described and shown.

Dated this 11th day of August, 1919.

ARTHUR E. EDWARDS,

Chartered Patent Agent,

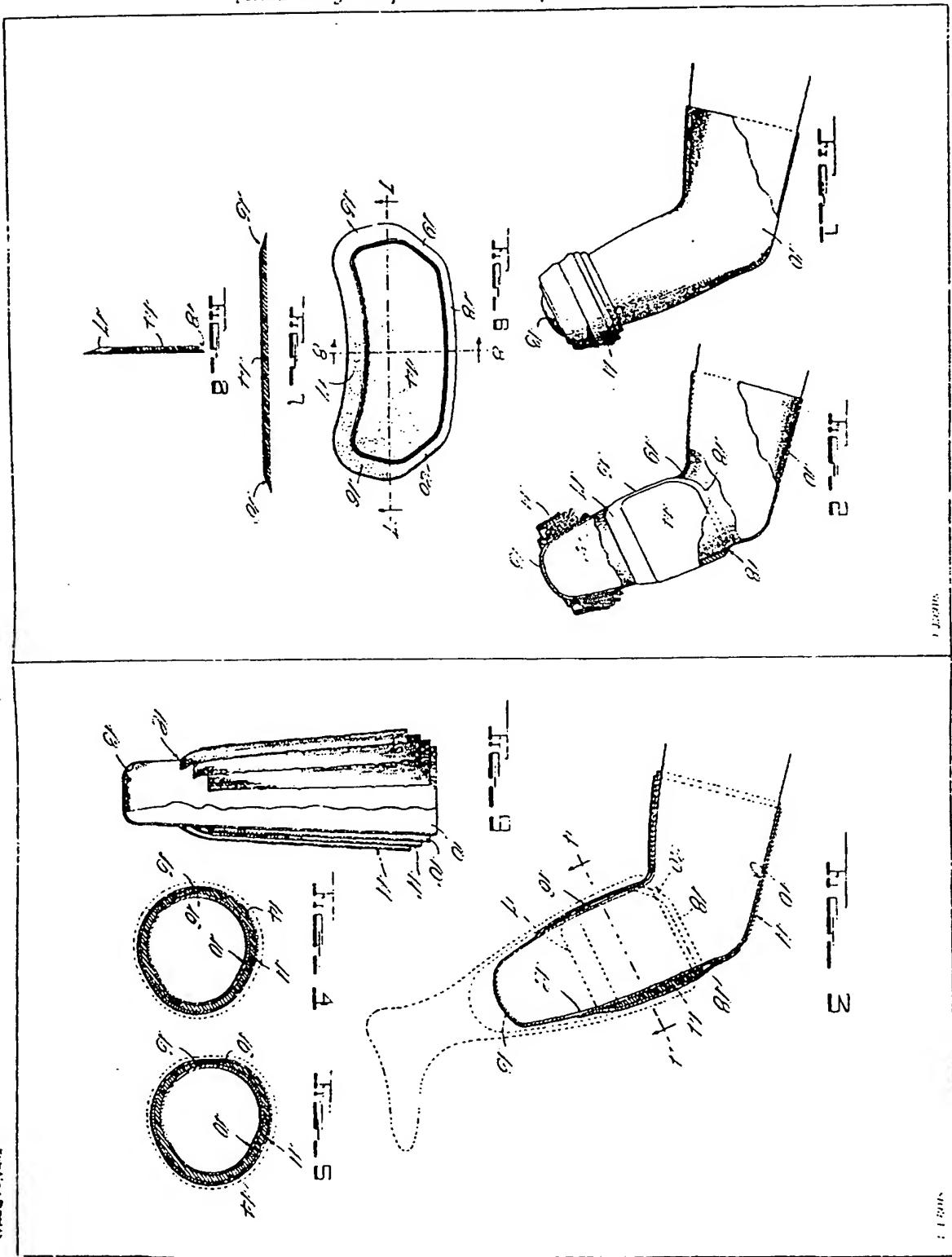
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[This Drawing is a reproduction of the Original on a reduced scale]

1911. REEVES, SAMUEL A. REEVES.

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(This Drawing is a reproduction of the Original in a reduced scale)

13041 BIRKBECKS: Drawing 2449 (1945)

